

1.0 **GENERAL**

1.1 **Related UBC Guidelines**

- .1 [UBC Learning Space Design Guidelines](#)

2.0 **MATERIALS AND DESIGN REQUIREMENTS**

2.1 **General**

- .1 All materials, equipment, devices, components, wire and cable provided under this contract shall be new CSA approved and listed with ULC as required by AHJ.

2.2 **DMX Ethernet Gateway**

- .1 The gateway shall provide an Ethernet interface to an isolated DMX/RDM universe.
- .2 The gateway shall be compatible with Art-Net, sACN and ESP DMX over Ethernet protocols.
- .3 The gateway shall be powered via PoE 802.3af standard and DC power supply.
- .4 The gateway shall have the following features:
 - .1 Output type: one (1) 5-pin XLR DMX
 - .2 DMX universes: 1 (512 channels)
 - .3 Input type: one (1) RJ-45 Ethernet connection
- .5 Product shall be Enttec 70406 ODE MK2 POE or Approved Alternative.

2.3 **DMX Splitter**

- .1 The splitter shall provide four (4) isolated DMX/RDM ports for distribution.
- .2 The splitter shall have the following features:
 - .1 Input: one (1) DMX input on 3-pole screw connector
 - .2 Output: four (4) DMX output each on 3-pole screw connector
 - .3 Power: provide external DC power supply as required
- .3 Product shall be Enttec 71004 DIN-RDS4 or Approved Alternative.

2.4 **DMX LED Profile Fixture**

- .1 The fixture shall be a colour-mixing high-intensity LED illuminator with DMX control of intensity and colour.
- .2 The fixture shall be UL 1573 listed for stage and studio use
- .3 The fixture shall comply with the USITT DMX-512A standard
- .4 Fixture Physical Features:

- .1 The unit shall be constructed of rugged, die cast aluminium, free of burrs and pits, finished in white.
 - .2 Lens secured with silicone shock mounts
 - .3 Shutter assembly shall allow for +/-25 degree rotation
 - .4 20 gauge stainless steel shutters
 - .5 Interchangeable lens tubes for different field angles with Teflon guides for smooth tube movement
 - .6 Safety cable mounted to anchor on fixture shall be provided
- .5 Fixture Optical Features:
- .1 The light beam should have a 2-to-1 centre-to-edge drop-off ratio
 - .2 Sharp imaging through a three-plane shutter design
 - .3 Sharp shutter cuts without halation
 - .4 Shutter warping and burnout in normal use shall be unacceptable
 - .5 Adjustable hard and soft beam edges
 - .6 19, 26, 36, and 50 degree units shall have optional lens tubes available for precision, high-contrast imaging.
- .6 Fixture Thermal Features:
- .1 Fixture shall be equipped with a cooling fan.
 - .2 Fan speed control via a DMX channel shall be possible.
 - .3 Fan speed software shall permit the fixture to override DMX fan speed setting to prevent heat damage to the fixture.
 - .4 The fixture shall utilize thermal management to maintain LED life to an average of 70% intensity after 50,000 hours of use.
 - .5 The fixture shall operate in an ambient temperature range of 0°C minimum, to 40° C maximum ambient temperature.
- .7 Fixture Electrical Features:
- .1 The fixture shall be equipped with a 120V, 60Hz internal power supply.
 - .2 The fixture shall support power in and thru operation with Neutrik PowerCon connectors.
 - .3 Power supply outputs shall have self-resetting current-limiting protection.
 - .4 Power supply shall have power factor correction.
- .8 Fixture LED Emitter Features:
- .1 The fixture shall contain a minimum of five different LED colours.
 - .2 All LEDs used in the fixture shall be high brightness.
 - .3 LED emitters should be rated for nominal 50,000-hour LED life to 70% intensity.
 - .4 All LED fixtures shall undergo a minimum eight-hour burn-in test during manufacturing.
- .9 Fixture Colour Features:
- .1 The fixture shall utilize a minimum of 60 LED emitters.
 - .2 The fixture shall have an LED array with red, amber, green, cyan, blue, indigo and white LED for broad spectrum colour, light tints, and variable whites.
 - .3 Measured brightness of the LED array shall be greater than 4,000 field lumens

- .10 Fixture Dimming Features:
 - .1 The LED system shall have high-resolution dimming.
 - .2 The fixture shall have the following dimming curve options: incandescent, standard, linear, quick.
- .11 Fixture Control and User Interface Features:
 - .1 The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors.
 - .2 The fixture shall be compatible with the ANSI RDM E1.20 standard.
 - .3 The fixture shall be equipped with multi-line LCD display for easy-to-read status reports and configuration changes.
 - .4 The fixture shall be equipped with a button user-interface.
 - .5 The fixture shall offer multiple DMX input profile options to include:
 - .1 RGB - control of all individual LED colours via a three-channel profile
 - .2 HSI – control of all individual LED colours via a three-channel profile
 - .3 HSIC – control of all LED colours via a four-channel profile
 - .4 Colour point provides variable colour temperature settings
 - .5 Direct – control of each individual colour channel via an independent channel
 - .6 Studio – Control of the fixture in a white-light 3 channel profile
 - .7 Variable-rate strobe channel shall be provided
- .12 Product shall be ETC Source Four LED Series or Approved Alternative.

2.5 DMX LED Wash Fixture

- .1 The fixture shall be a colour-mixing high-intensity LED illuminator with DMX control of intensity and colour.
- .2 The fixture shall be UL 1573 listed for stage and studio use
- .3 The fixture shall comply with the USITT DMX-512A standard
- .4 Fixture Physical Features:
 - .1 The fixture shall be contained in a rugged all-metal die-cast housing, free of burrs and pits, finished in white.
- .5 Fixture Thermal Features:
 - .1 The fixture shall be cooled with a variable speed fan.
 - .2 The fixture shall utilize thermal management to maintain LED life to an average of 70% intensity after 20,000 hours of use.
 - .3 The fixture shall operate in an ambient temperature range of 0°C minimum, to 40° C maximum ambient temperature.
 - .4 Safety cable mounted to anchor on fixture shall be provided
- .6 Fixture Electrical Features:
 - .1 The fixture shall be equipped with a 120V, 60Hz internal power supply.
 - .2 The fixture shall support power in and thru operation with Neutrik PowerCon connectors.

- .3 Power supply outputs shall have self-resetting current-limiting protection.
- .4 Power supply shall have power factor correction.

- .7 Fixture LED Emitter Features:
 - .1 The fixture shall contain a minimum of four different LED colours.
 - .2 All LEDs used in the fixture shall be high brightness.
 - .3 LED emitters should be rated for nominal 20,000 hour LED life to 70% intensity.
 - .4 All LED fixtures shall undergo a minimum three-hour burn-in test during manufacturing.

- .8 Fixture Colour Features:
 - .1 The fixture shall utilize a minimum of 40 LED emitters.
 - .2 These emitters shall be made up of Red, Green, Blue and Lime.

- .9 Fixture Dimming Features:
 - .1 The LED system shall have high-resolution dimming.
 - .2 The dimming curve shall be optimized for smooth dimming over longer timed fades.

- .10 Fixture Control and User Interface Features:
 - .1 The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors.
 - .2 The fixture shall be compatible with the ANSI RDM E1.20 standard.
 - .3 The fixture shall be equipped with a 7-segment display for easy-to-read status and control.
 - .4 The fixture shall be equipped with a button user-interface.

- .11 Product shall be ETC ColorSource Par or Approved Alternative.

2.6 Stage Lighting Rig

- .1 The stage lighting rig shall be a complete standalone system that shall allow servicing of stage light fixtures at any time. The contractor shall be responsible for the installation of all aspects of the motorized stage rigging equipment.

- .2 The truss shall have the following features:
 - .1 The truss shall be easily connected together to create a structure to allow light fixtures to be mounted freely at any position.
 - .2 Material: aluminium 6061-T6 extrusions
 - .3 Main chords: 2" outer diameter
 - .4 Attachment: spigot and pin
 - .5 Finish: shall be coordinated with UBC IT Audio Visual

- .3 The electric chain hoist shall have the following features:
 - .1 The chain hoist shall allow hoisting of the rigging equipment.
 - .2 Capacity: 500kg
 - .3 Lift: 35ft
 - .4 Brake: double braking system
 - .5 Speed: up to 8ft/min

- .6 Chain size: 4 x 12mm
 - .7 Control: direct control, external limit switch, positioning encoder
 - .8 Accessories: chain bag
- .4 The cable reel shall have the following features:
- .1 The cable reel shall provide neat and reliable cable management for power and data cabling.
 - .2 The cable reel shall be spring driven without the need to be motorized.
 - .3 Power Reel: 12 AWG multi-conductor cable with 19-pin connector.
 - .4 DMX Reel: 24 AWG multi-conductor cable with DMX connector.

*****END OF SECTION*****